ABSTRACT

An impregnated cathode whose initial electron emitting performance, lifetime property, and insulating property for an electron gun are excellent and that is suitable for mass production, and a method for manufacturing the same. In the impregnated cathode, the porosity of the sintered body of porous metal is continuously increased as the distance in the depth direction from an electron emitting face is increased. A pellet of sintered body of metal raw material has pores in it. The pores are filled with electron emitting material. The porosity is continuously increased as the distance in the depth direction from an electron emitting face is increased. Thus, since the discontinuity inside the pellet is not formed, a reaction generating free Ba continuously and smoothly proceeds on the entire pellet. In addition, since raw material powder having more than one kind of particle size is not necessary to be used, the manufacturing process can be simplified. Moreover, various functions such as lifetime property, etc. can be improved by making the porosity and porosity distribution in a certain range.